```
%Dimensions of the House


xStart = 0%Ignored Base is ALWAYS (0|0) for Symmetry Reasons
```

```
xStart = 0
```

```
yStart = 0
```

```
yStart = 0
```

```
height = 8
```

```
height = 18
```

```
width = 8
```

```
width = 8
```

```
margin = 0.5
```

```
margin = 0.5000
```

```
%Critical Point
xC = 4;
yC = 4;


%Door
doorW = 1
```

```
doorW = 1
```

```
doorH = 2
```

```
doorH = 2
```

```
%Window
windW = 1.5;
windH = 1.5;
windMargin = 0.25;

%Helping Variables
ww = windW + 2 * windMargin %window Width and margin
```

```
ww = 2
```

```
wh = windH + 2 * windMargin
```

```
wh = 2
```

```
%For House
rw = width - 2 * margin %real width
```

```
rw = 7
```

```
rh = height - margin %real height
```

```
rh = 17.5000
```

```
%Step Size
doorStep = 10
```

```
doorStep = 8
```

```
windowStep = 3
```

```
windowStep = 1
```

```


data = 0;
DataMatrix = zeros(2,5);

%Steps always begin with 0:step
maxDStep = floor((rw - doorW)/doorStep)
maxDStep = 0
```

```
maxWindowStepWidth = floor((rw - ww)/windowStep)
```

```
maxWindowStepWidth = 5
```

```
maxWindowStepHeight = floor((rh - doorH - wh)/windowStep)
```

```
maxWindowStepHeight = 13
```

```
maxWStep = (maxWindowStepWidth+1) * (maxWindowStepHeight+1) - 1 %+ maxWindowStepWidth//2
```

```
maxWStep = 83
```

```
nextPosW = ceil(ww/windowStep)
```

```
nextPosW = 2
```

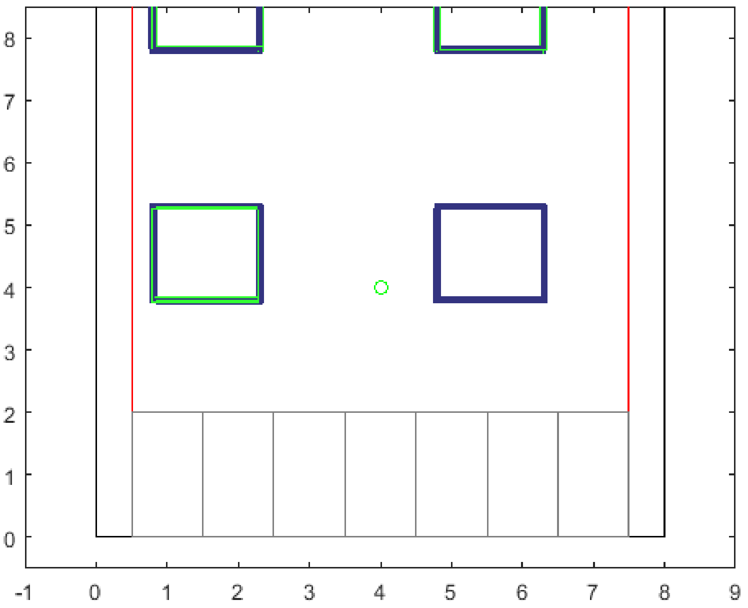
```
nextPosH = ceil(wh/windowStep)
```

```
nextPosH = 2
```

```
%Plot
plotSquare(xStart, yStart, width, height,[0 0 0]);
hold on
plotSquare(xStart + margin,yStart,rw,rh,'r'); %Margin
plot(xC,yC,'go')

%Find all possible configurations
for d = 0:1:maxDStep
    doorX = margin + d * doorStep;
    for w1 = 0:1:maxWStep
        colW1 = mod(w1,maxWindowStepWidth+1);
        rowW1 = floor(w1/(maxWindowStepWidth+1));
        windX = colW1*windowStep + margin + windMargin + 0.1 * rand();
        windY = rh -wh-rowW1*windowStep + windMargin + 0.1 * rand();


        for w2 = w1+nextPosW:1:maxWStep
            %Misses some data points at the turnover point
            colW2 = mod(w2,maxWindowStepWidth+1);
            rowW2 = floor(w2/(maxWindowStepWidth+1));

            if rowW1 == rowW2 || rowW2 - rowW1 >= nextPosH %Else a window *COULD* overlap

            windX2 = colW2*windowStep + margin + windMargin + 0.1 * rand();
            windY2 = rh -wh -rowW2*windowStep + windMargin + 0.1 * rand();


            %Stop if window would be inside critical point
            if isInRectangle(windX,windY,windW,windH,xC,yC) || ...
                    isInRectangle(windX2,windY2,windW,windH,xC,yC)

            else
                %Plotting
                plotSquare(doorX,yStart, doorW, doorH, [0.5 0.5 0.5]);
                plotSquare(windX, windY, windW, windH, [0.2 1 0.2]);
                plotSquare(windX2, windY2, windW, windH, [0.2 0.2 0.5]);

                data = data + 1;
                DataMatrix(data,:) = [doorX windX windY windX2 windY2];

                axis([-1 9 -0.5 8.5])
            end
            end



        end
    end
end


axis([-1 9 -0.5 8.5])
data
```

```
data = 196
```

```
hold off
```



Does not check, if door is in critical point

```
*IF, door,LE,3,THEN
*IF, w1, GE, 12, THEN
colW1 = colW1 + 2
*ELSE
*ENDIF
!Same for w2
*IF, w2, GE, 12, THEN
colW2 = colW2 + 2
*ELSE
*ELSE
*ENDIF
```